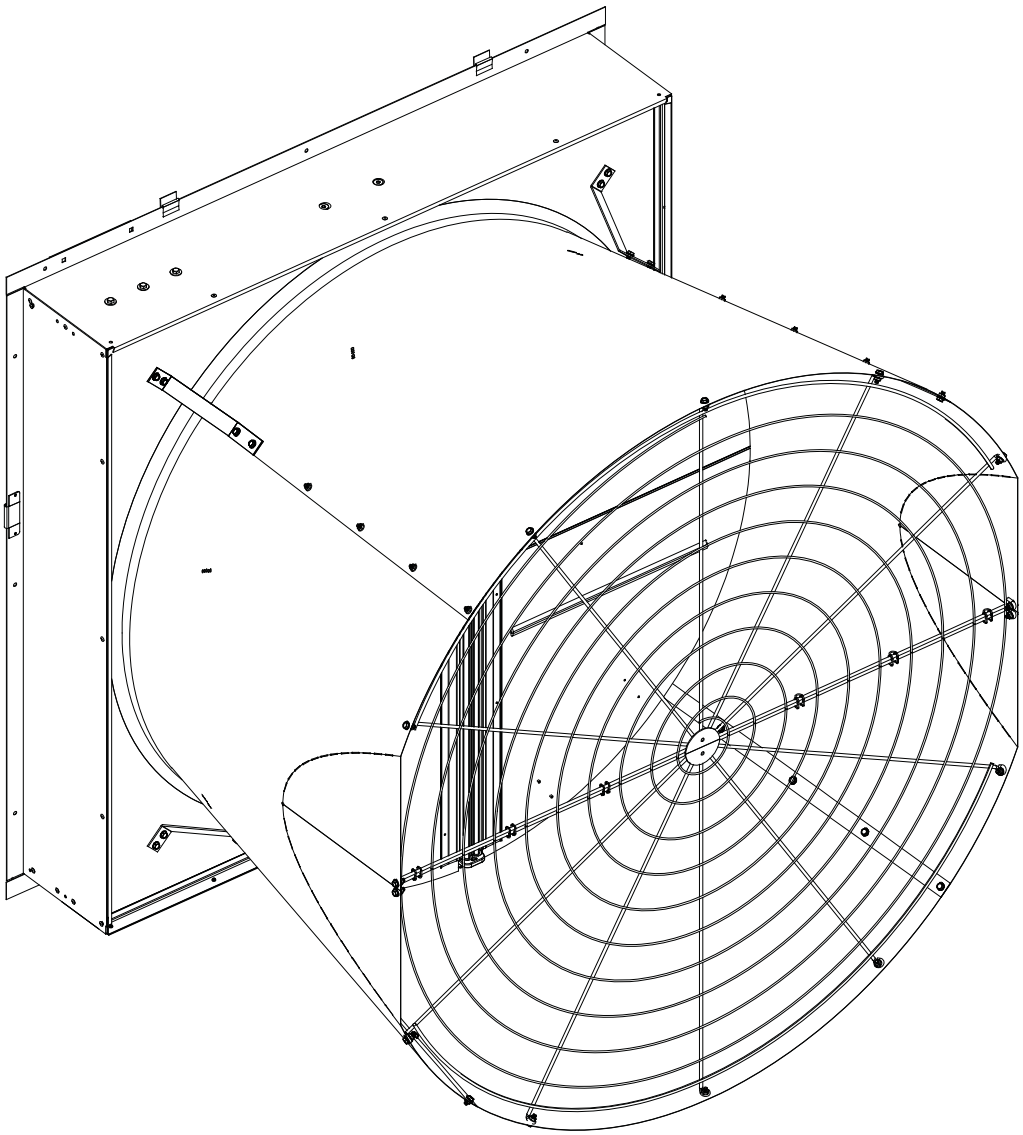
WF50 Fan with Dragonfly Damper Door

WF501VCD, WF5015VCD



Munters Corporation
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www.munters.us

FORM: QM1079
Rev. 10, August 2013

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THANK YOU

Thank you for purchasing a WF Series fans with Dragonfly Damper Door. Munters equipment is designed to be the highest performing, highest quality equipment you can buy. With the proper installation and maintenance it will provide many years of service.

PLEASE NOTE

To achieve maximum performance and insure long life from your Munters fan it is essential that it be installed and maintained properly. Please read all instructions carefully before beginning installation.

WARRANTY

For Warranty claims information see the "Warranty Claims and Return Policy" form QM1021 available from the Munters Corporation office at 1-800-227-2376 or by e-mail at aghort.info@munters.com.

Conditions and Limitations:

- Products and Systems involved in a warranty claim under the "Warranty Claims and Return Policy" shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by Munters Corporation.
- Malfunction or failure resulting from misuse, abuse, negligence, alteration, accident or lack of proper installation or maintenance shall not be considered a defect under the Warranty.

UNPACKING THE EQUIPMENT

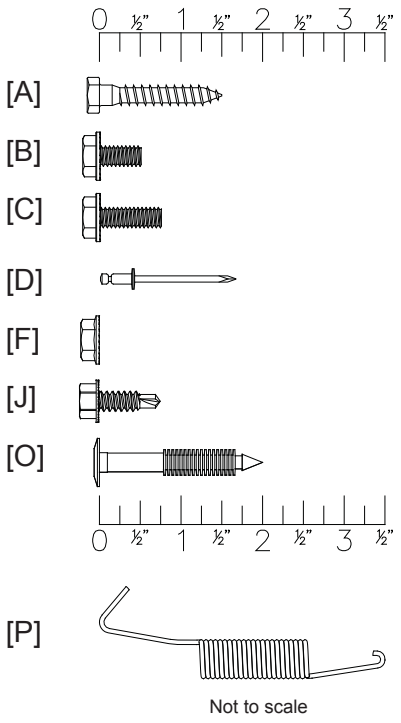
Before beginning installation, check the overall condition of the equipment. Remove packing materials, and examine all components for signs of shipping damage. Any shipping damage is the customer's responsibility and should be reported immediately to your freight carrier.

Each Crate Includes:

1 – 50” Belt Drive Fan
1 – Dragonfly Door Assembly
4 – Cone Sections (2 side, 2 top bottom)
1 – Cone Guard
1 – Inlet Guard
1 – Hardware package (HP1119)

HP1119 for WF50 Dragonfly

[A].... 12 - ¼” x 1.5” Lag Screws
[B].... 24 - ¼” x ½” Flange Head Bolts
[C].... 14 - ¼” x ¾” Flange Head Bolts
[D].... 8 - ⅛” Dia. Pop Rivet
[F].... 38 - ¼” Flange Nuts
[G].... 4 - Cone Support Brackets
[J]..... 8 - ¼” x ¾” TEK Screws
[L]..... 2 – Tall Wing Brackets
[M].... 2 - Short Wing Brackets
[N].... 2 - Dragonfly Door Wing
[O].... 4 - 5⁄16” Push-in fasteners
[P].... 2 - Retainer Springs

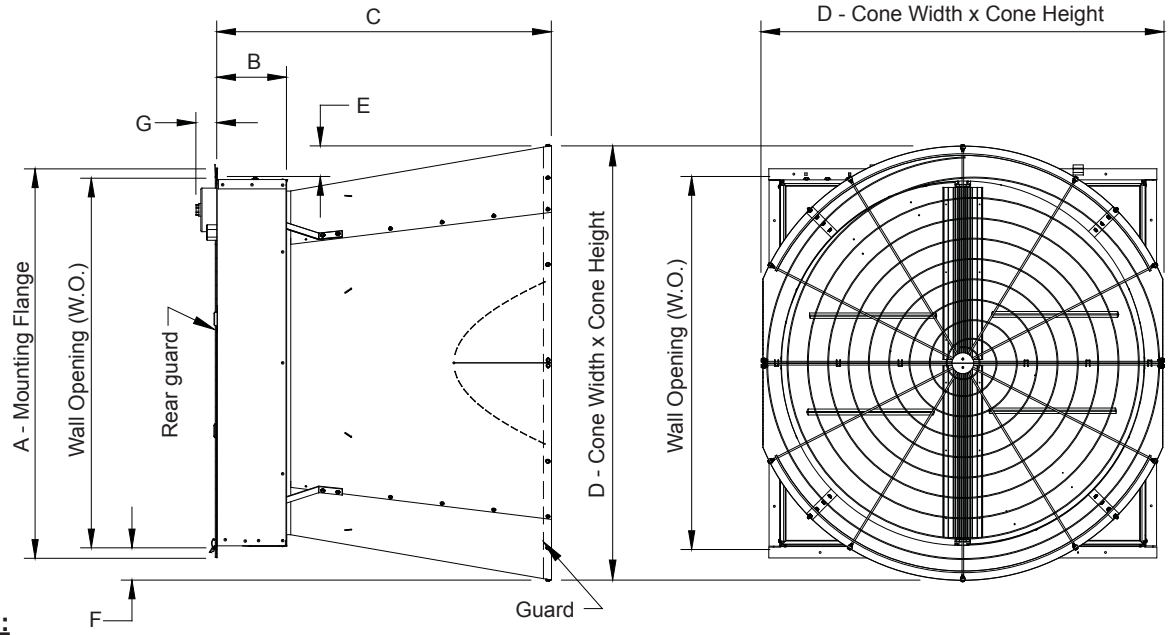


Fan Specifications: 60Hz shown (50Hz available)

Power: 120/240 VAC or 208-240/480 VAC

NOTE: May contain Fan Accesories.

Phase: 1 or 3



Dimensions:

Size	A	B	C	D Cone Width x Cone Height	E Above W.O.	F Below W.O.	G	Wall Openings (W.O.)
50”	57 7/16” x 57 7/16” sq.	10 5/16”	49 3/8”	59 1/2”W. x 64”H.	4 9/16”	4 1/2”	3 1/16”	54 1/2”W. x 54 1/2”H.

*Opening based on 2 x 4 framing. Opening size may change with framing.

Step 1

Construct the framed opening to correct size according to the Wall Opening Listed in **chart A** below.

Fan Dia.	Wall Opening (W. x H.)	Minimum Spacing 'Z'
50”	54 ½”W. x 54 ½”H.	12” recommended; 5” minimum

Chart A

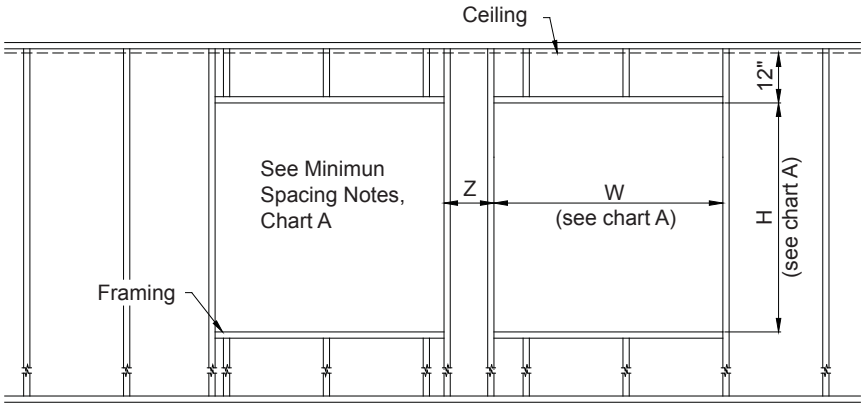
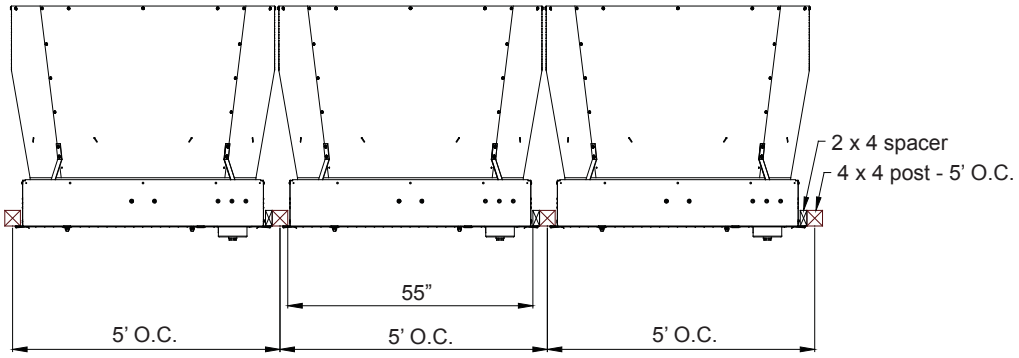


Figure 1A Frame Construction

FRAGILE

Note: Dragonfly door assembly should be carefully set aside until needed.
Do not remove plastic shipping material from door assembly until installed into fan.



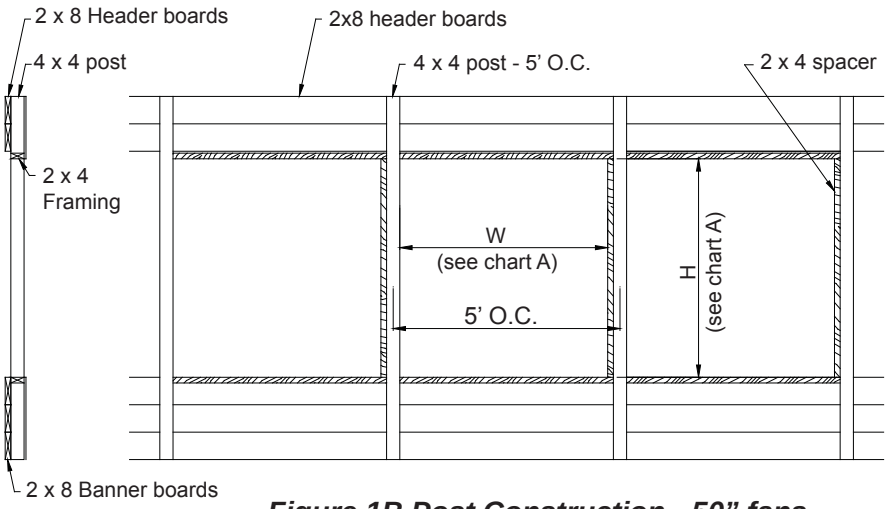


Figure 1B Post Construction - 50” fans

Step 2

Slide fan housing into framed wall opening. ***See Figure 2.***

Step 3

Confirm that housing inside dimensions match those shown in ***Figure 3A***. Then secure housing to wall using (12) Screws [A] through holes in each mounting flange. ***See Figure 3B.***

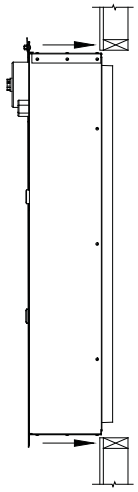


Figure 2

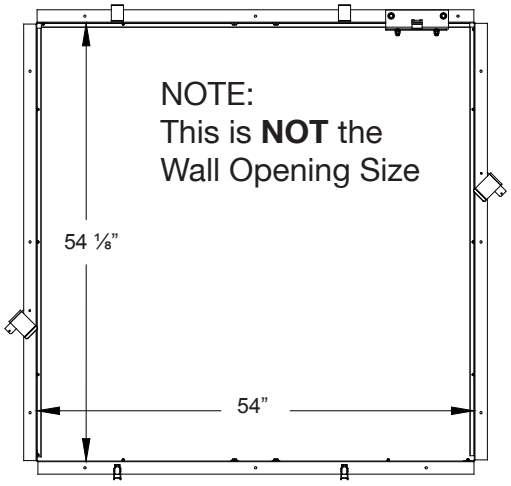


Figure 3A

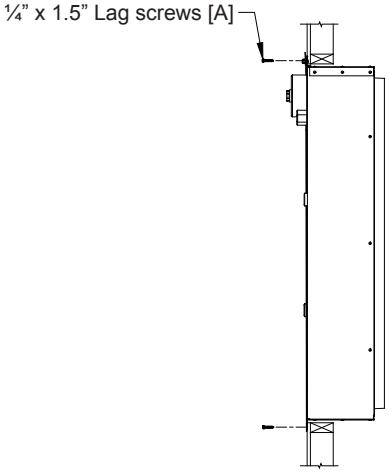


Figure 3B

PROPELLER INSTALLATION

Step 4

Remove propeller from back of fan.

Step 5

Remove (4) bolts and nuts from hub assembly.

Step 6

Attach propeller to hub assembly using (4) bolts and nuts removed in step 5. Tighten nuts to 180 inch-pounds (20.3 NM). ***See Figure 4.***

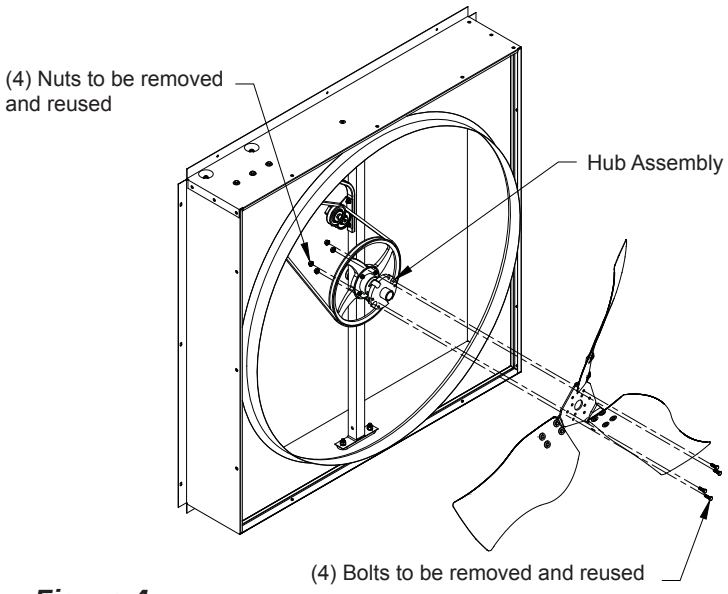


Figure 4

DISCHARGE CONE INSTALLATION

NOTE: The fan must be installed in the wall before proceeding with Discharge Cone installation.

Step 7

Remove packaging from cone sections and guard.

Step 8

Place all (4) cone sections on a flat surface. ***See Figure 5.*** Place (1) support bracket at each joint.

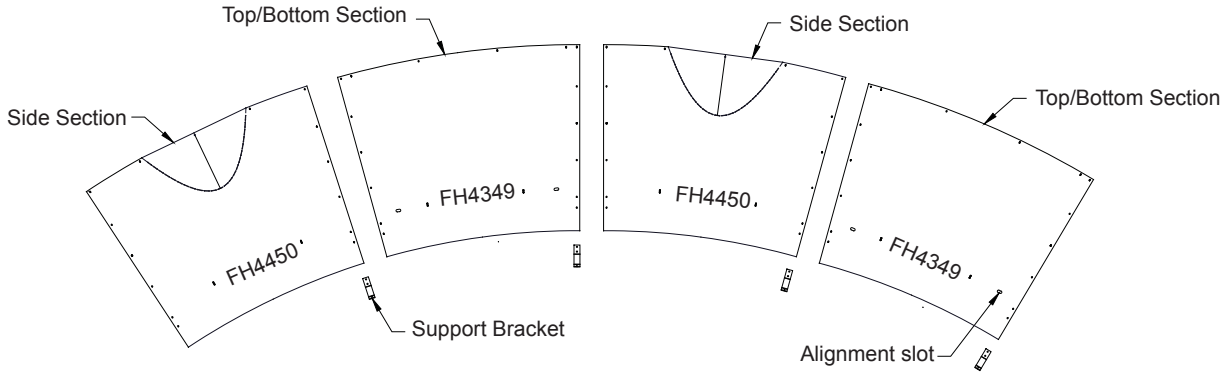


Figure 5

Step 9

Join cone sections using (18) of each Bolts [B] and Nuts [F]. Bolts should be installed from the inside of cone with the nuts on the outside. The bolts in the two holes nearest the small end of each section hold a support bracket. ***See Figure 6A & 6B.***

Step 10

Stand cone sections on edge and curl ends around until they meet, forming a round cone. The support brackets should be on the outside of cone. Join ends using remaining (6) Bolts [B] and Nuts [F]. Tighten all bolts fully.

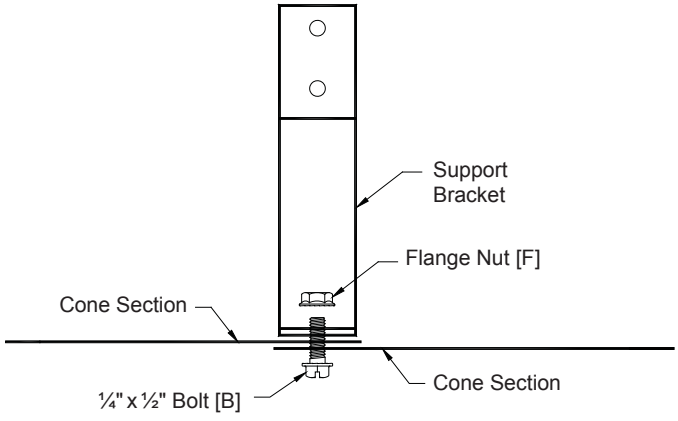


Figure 6A

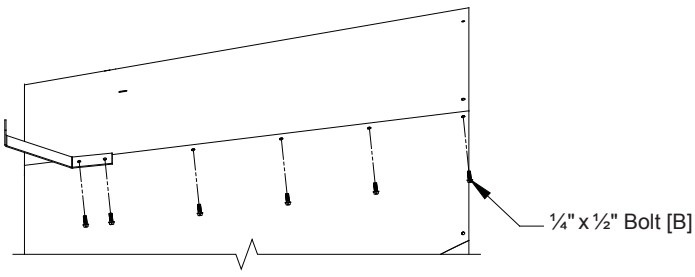


Figure 6B

Step 11

Install cone on fan making sure the cone sections with flat edges are on the sides. Two people are usually required to do this. Cone should slide over fan outlet approximately 1". After cone is on fan, secure it with (2) Screws [J] through each support bracket. ***See Figure 7***.

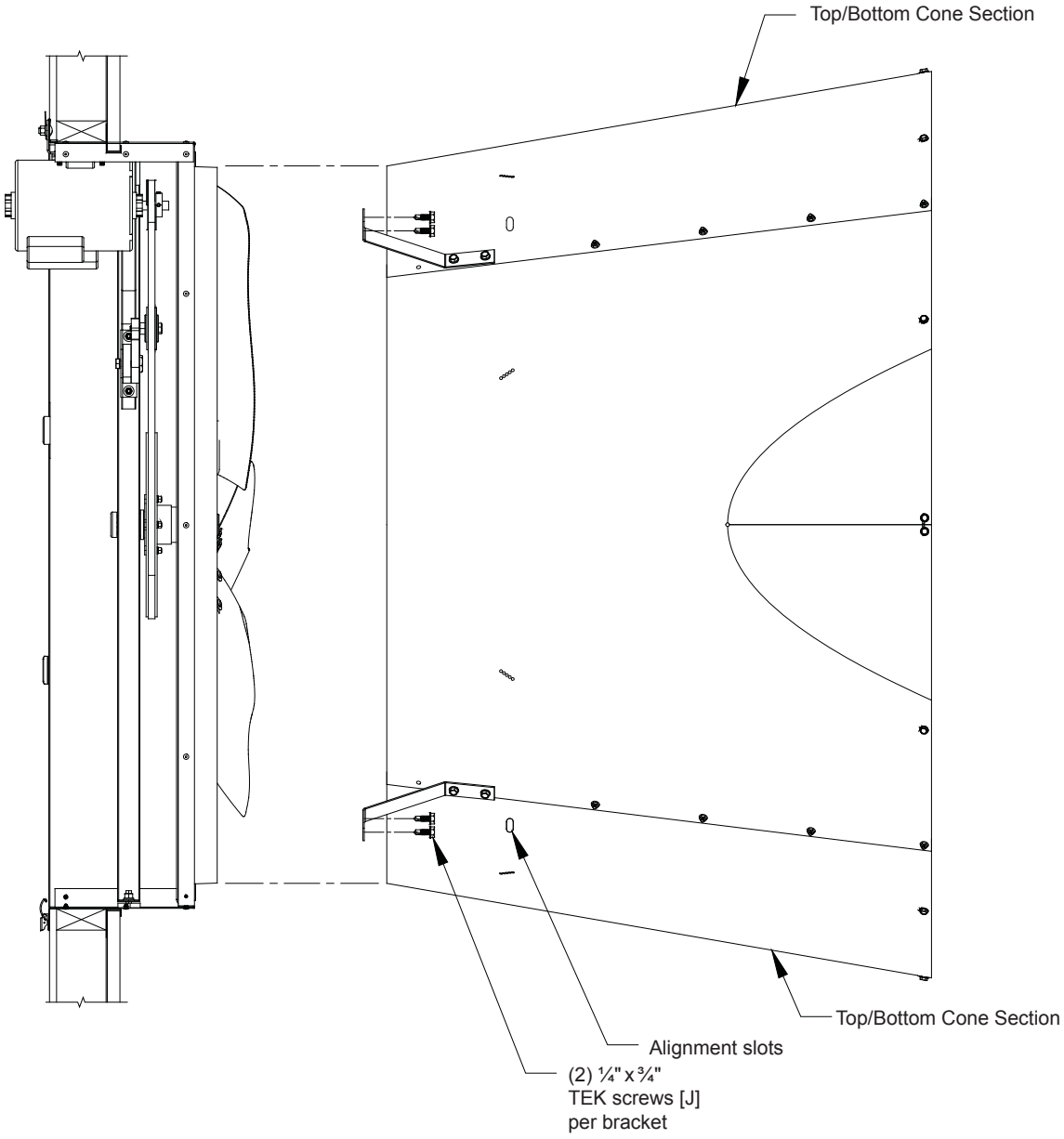


Figure 7

Step 12

To assemble the (2) Dragonfly door wings, hold the Wing [N] with the rounded side down and the black strip away from you. Insert Push Pin [O] through the hole in the Tall Wing Bracket [L] and half way into the next to the last channel on the right. Then while pushing Push Pin [O] in the rest of the way guide the tab on the Tall Wing Bracket [L] into the first channel. The Short Wing Bracket [M] goes on the left and installs the same way. ***See Figures 8A & 8B.***

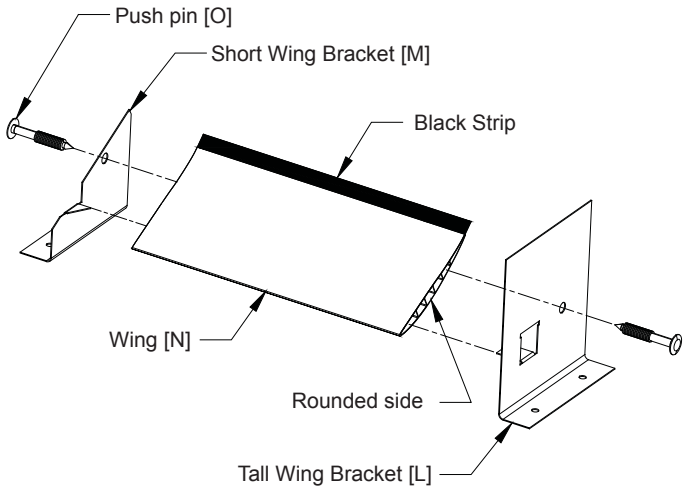


Figure 8A

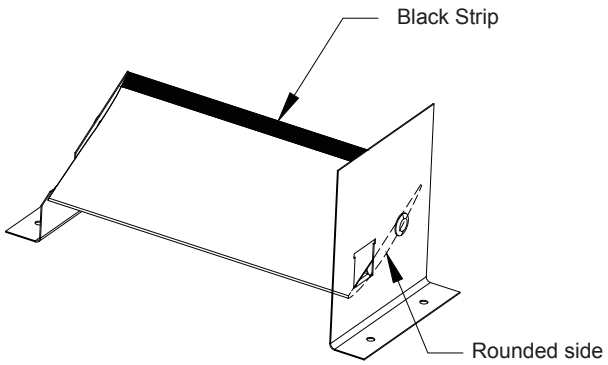


Figure 8B

Step 13

Fasten each wing assembly to the Dragonfly door using (4) Rivet [D]. ***See Figure 9.***

FRAGILE

Handle with care

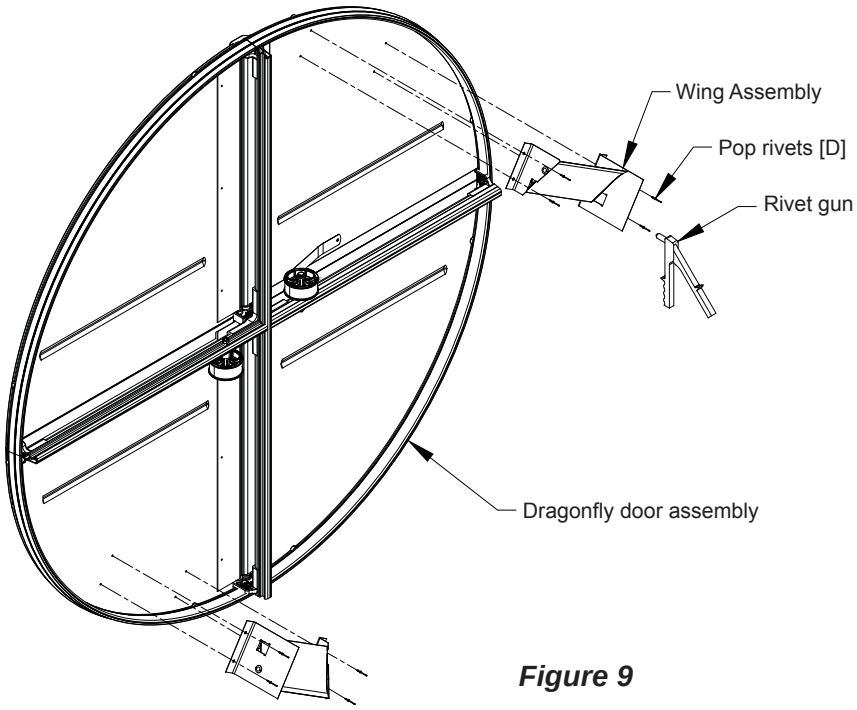


Figure 9

Step 14A

While holding the Dragonfly door assembly with the wings facing into the fan and the "Up" arrow on the door pointing up and the alignment pins pointing down, insert the door assembly into the cone until the alignment pins rest in the alignment slots in the bottom cone section. ***See Figure 10A***. Push the top of the door assembly into the cone so that the damper assembly rests securely in the cone without falling out.

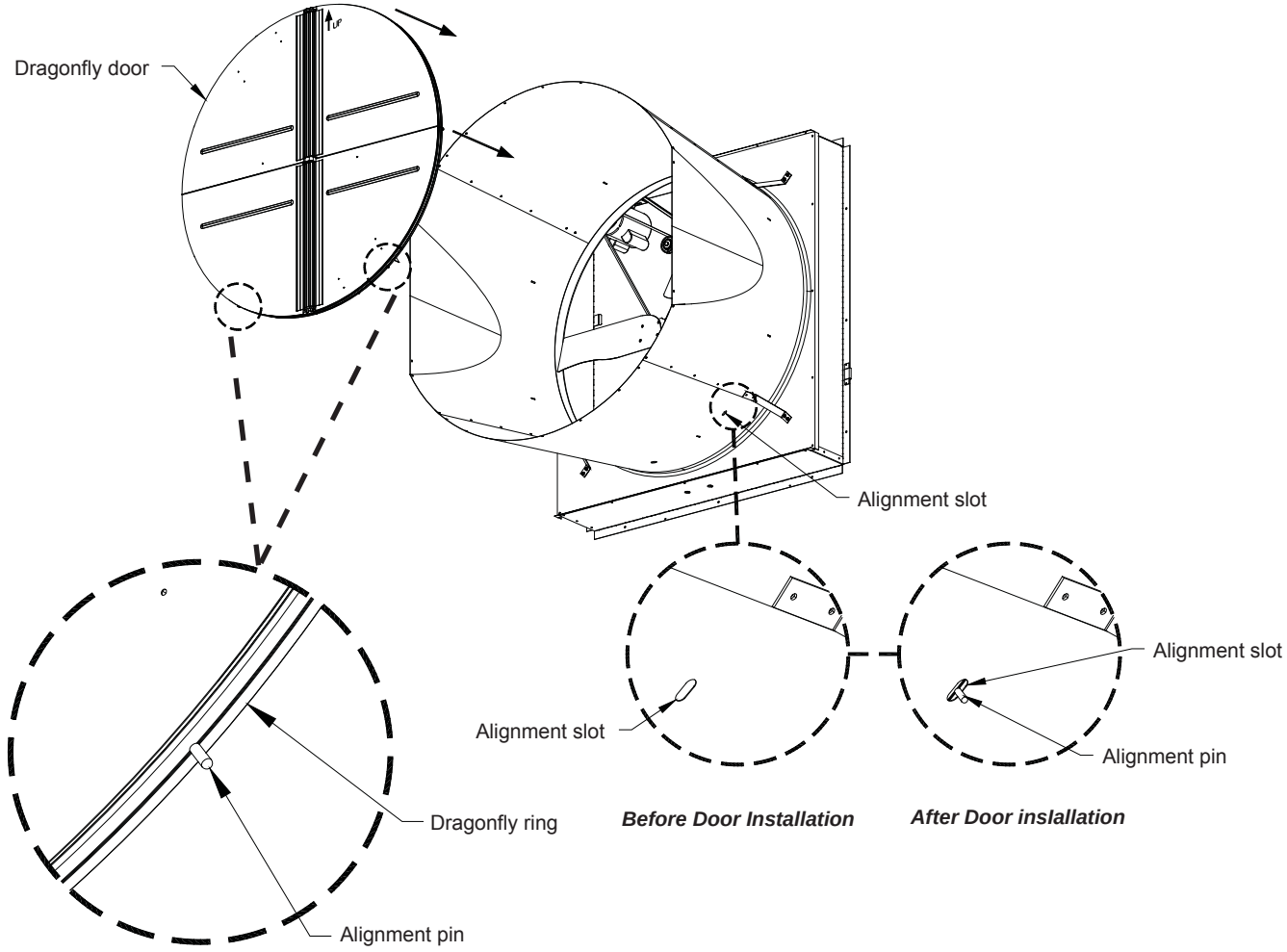


Figure 10A

Step 14B

The door assembly is secured into place with (2) Retainer Springs [P], one at each upper cone seam. Working from the back of the fan, the small end of the spring hooks into the Dragonfly Ring seal slot at approximately the 1 o'clock and 11 o'clock position, in line with the cone seam joints. ***See Figure 10B***. While holding the end of the spring with the large "L" shaped end, push the top of the door open slightly and hook the spring in the outer seal slot in the Dragonfly ring, making sure to push the rubber seal aside as spring enters seal slot. ***See Figure 10B***. Repeat for the other spring and position.

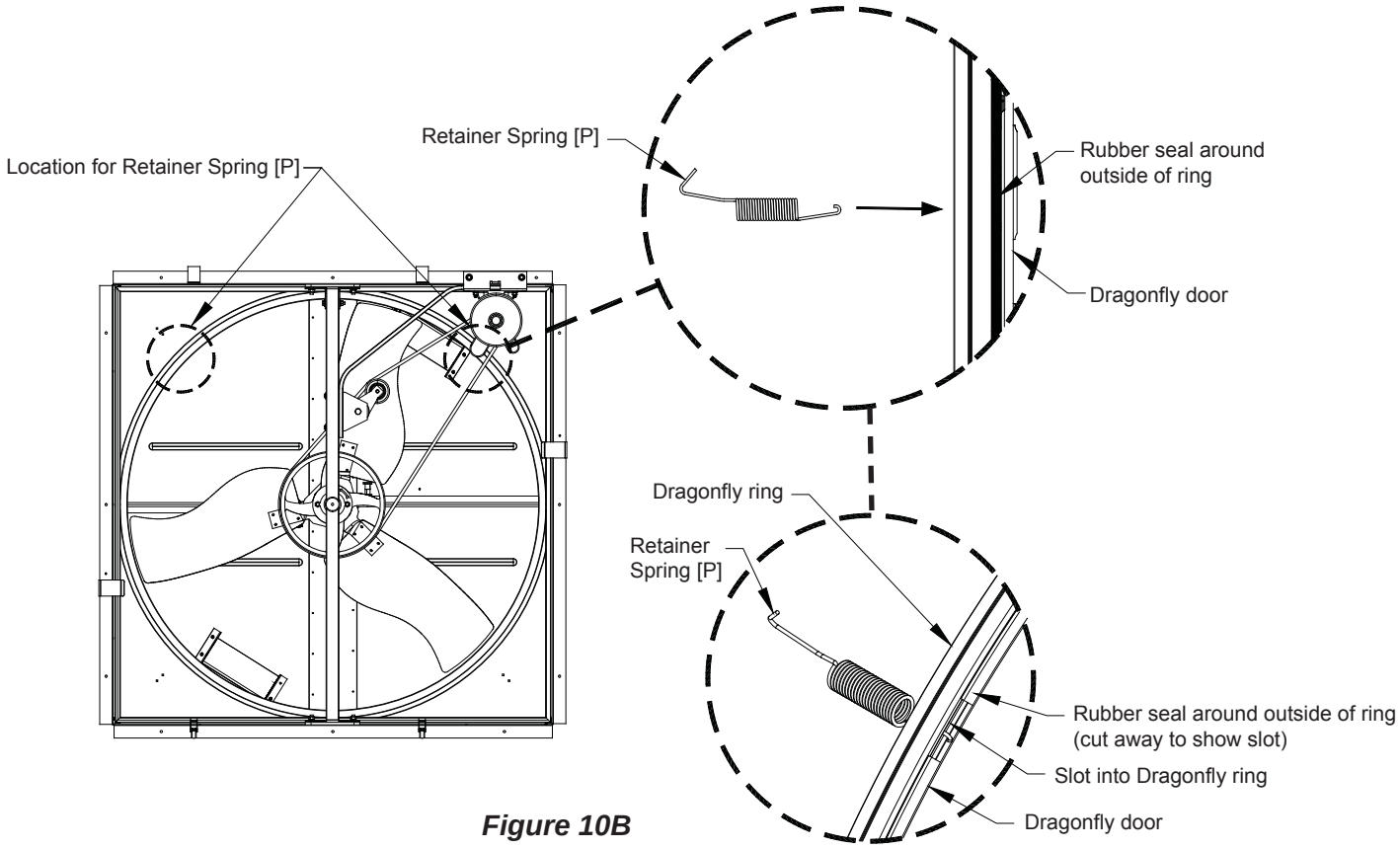


Figure 10B

Step 14C

Stretch each spring inward and insert large "L" shaped end of spring into its hole in the cone, between orifice panel and cone bracket bolts. ***See Figure 10C.***

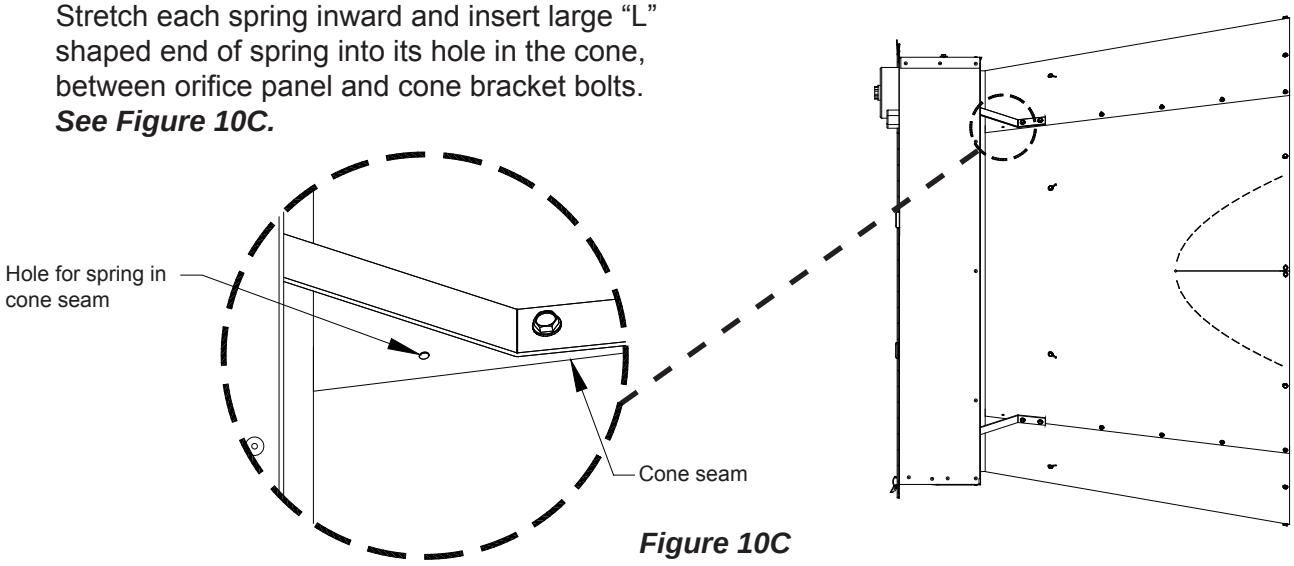


Figure 10C

Step 15

After Dragonfly door is installed carefully remove the plastic shipping wrap material holding the doors closed. ***See Figure 11.***

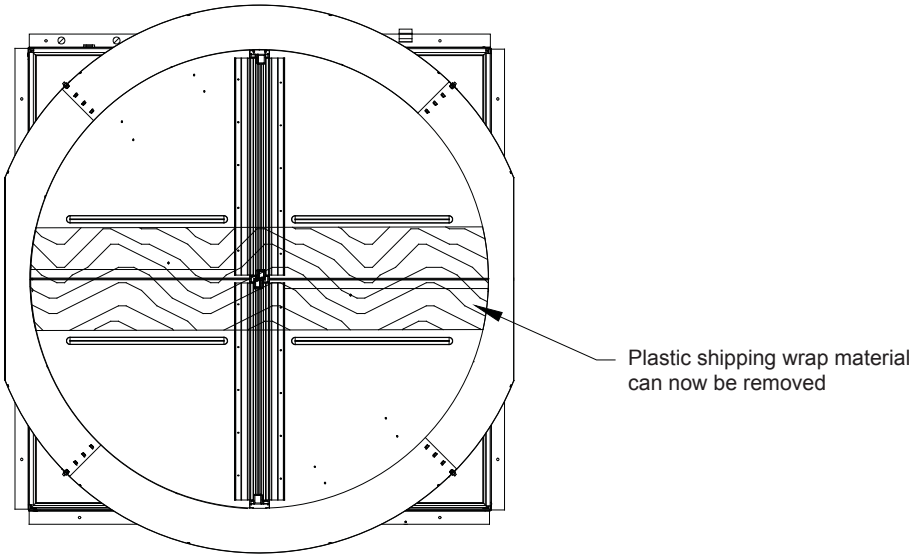


Figure 11

Step 16A

The Cone Guard comes in two (2) pieces and goes into the cone with the eyelets facing out. Install the top Guard and fasten it to the Cone using (7) Bolts [C] and Nuts [F]. Continue with the bottom guard and fasten it to the cone using (7) Bolts [C] and Nuts [F]. ***See Figure 12A & 12B.***

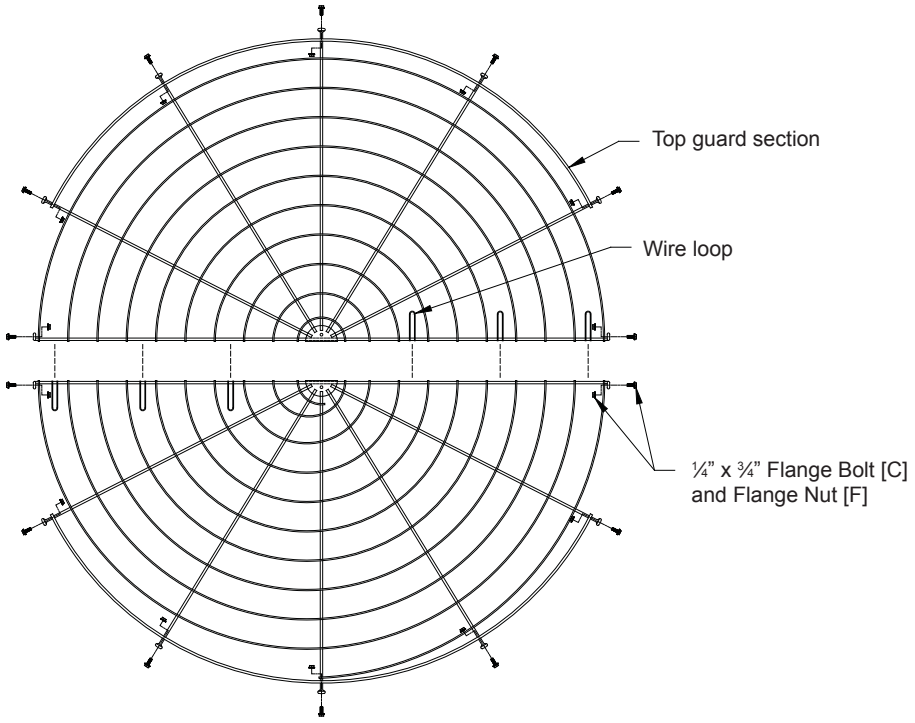


Figure 12A

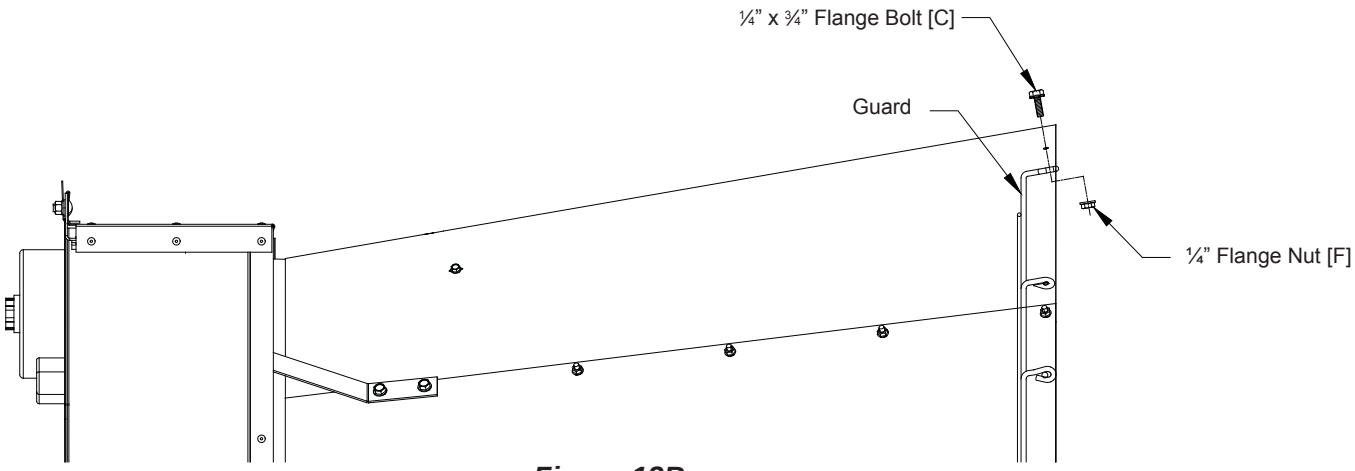


Figure 12B

Step 16B

After the top and bottom Cone Guards are fastened in place, secure the guard sections together by wrapping the wire loop on each guard section around the center wire of the opposite guard. ***See Figure 12C.***

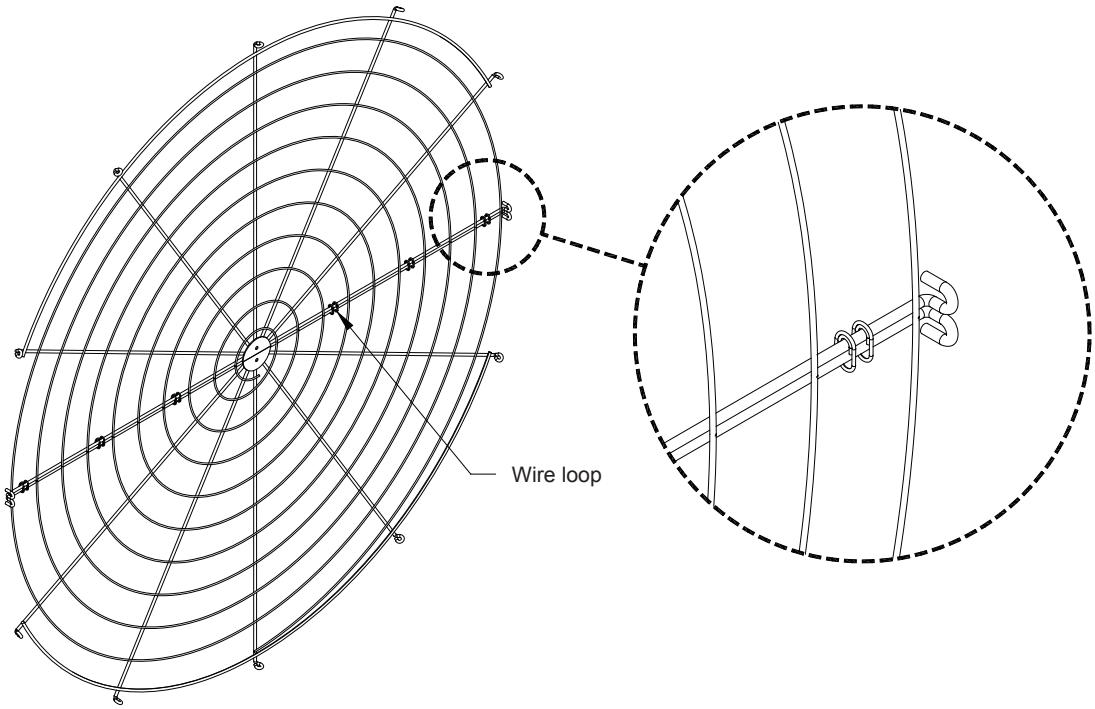


Figure 12C

Step 17

Before installing the inlet gueard, pull Dragonfly frame firmly inward at sides and top to minimize gaps between Dragonfly ring and cone. Now check doors for smooth opening and closing.The inlet guard has a portion trimmed away to fit around the motor. Slide the top of the rear guard down into the guard clips at the top of the fan and position it in place. Fasten guard in place by rotating the left and right shutter clip over the guard. Also latch the bottom of the guard in place with the 2 draw latches. ***See Figure 13***.

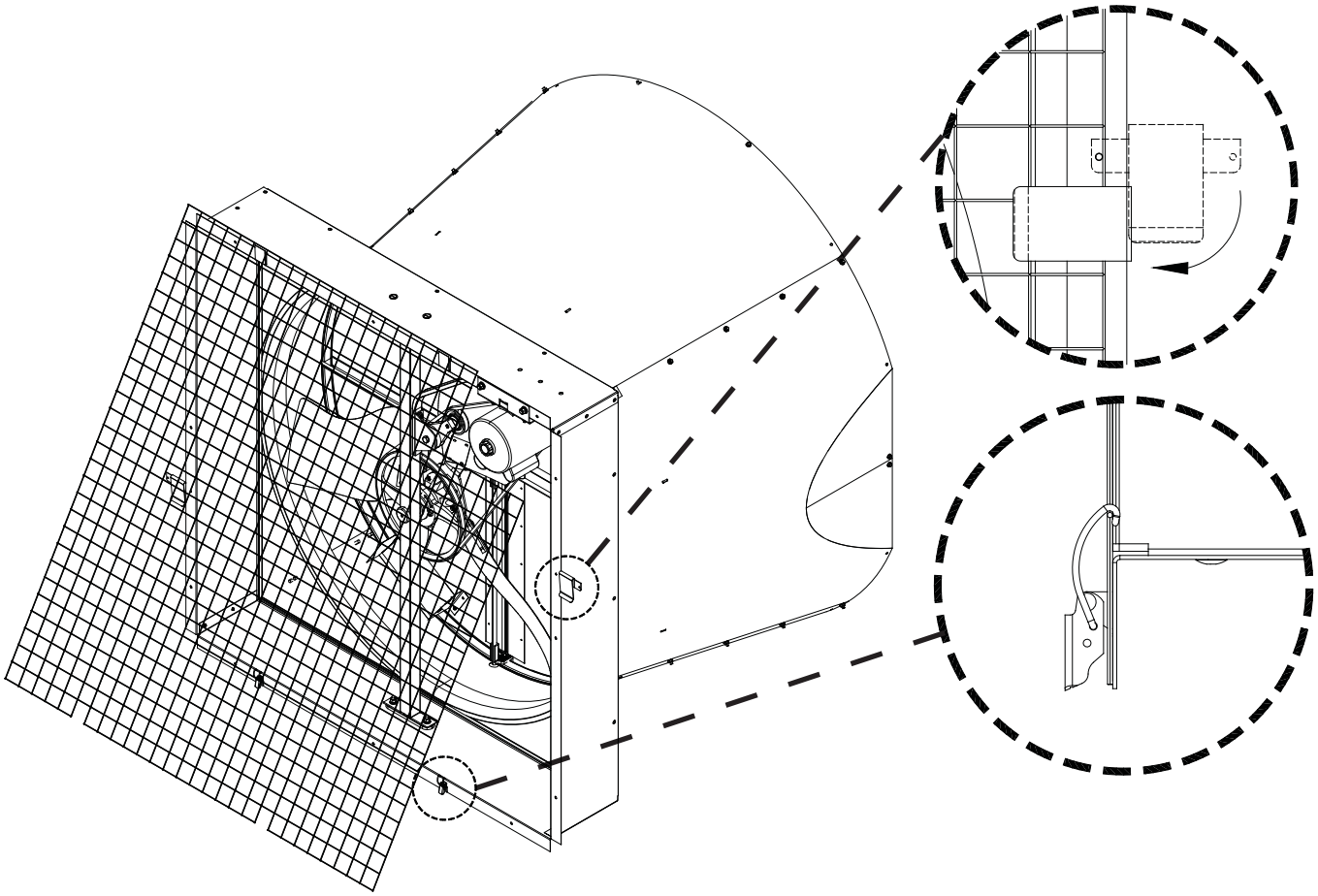


Figure 13

Continue to electrical wiring section.

ELECTRICAL WIRING

⚠ WARNING

ROTATING FAN BLADES. Operation of fan without wire screens or guards may result in direct contact with blades and cause severe personal injury or death.

All wiring should be installed in accordance with National, State, and Local electrical codes. Fans used to ventilate livestock buildings or other rooms where continuous air movement is essential should be connected to individual electrical circuits, with a minimum of two circuits per room. For electrical connection requirements, refer to diagram on motor nameplate and to information enclosed with the Aerotech environmental control to be used.

Single Phase Fans: motor overload protection should be provided for each fan. A Circuit Breaker Switch or slow blow motor type fuses must be used, ***See Figure 14A***. See Aerotech form **QM1400** for proper size.

Three Phase Fans: motor overload protection should be provided for each fan. A three-pole motor starter or slow blow motor fuses must be used. ***See Figure 14B.*** If a frequency drive (inverter) is used, confirm that motors are rated for inverter duty at the voltage used. The installation of line reactors is recommended to reduce voltage spikes and harmonic distortion. Supplemental motor overload protection is also recommended.

NOTE: *A safety cut-off switch should be located adjacent to each fan.*

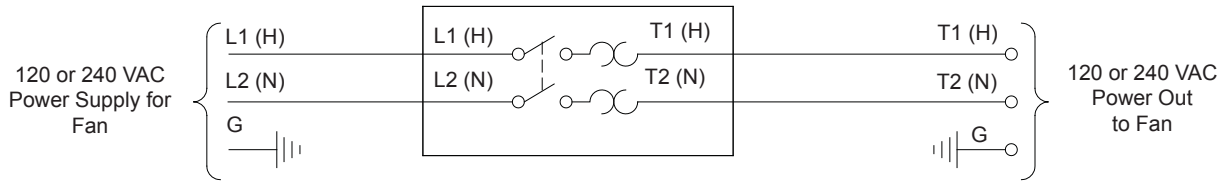


Figure 14A
Single Phase - Motor Overload Protection with Disconnect
(SY2000 or Equivalent)

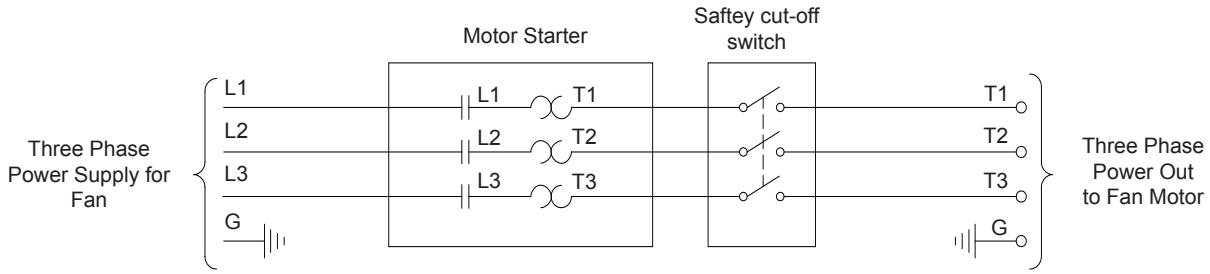


Figure 14B
Three Phase - Motor Overload Protection with Disconnect

NOTE:
Information in parenthesis refers to 120 VAC control.

KEY:
L1 = Line 1
L2 = Line 2
L3 = Line 3
H = Hot
N = Neutral
G = Ground

Step 1

As the power cable exits the back of the motor form a drip loop and then run cable to power source. ***See Figure 15A and 15B.***

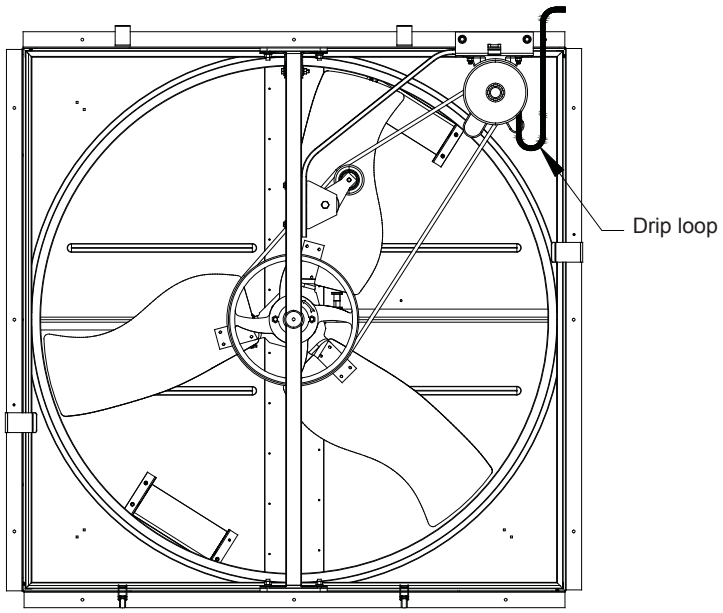


Figure 15A

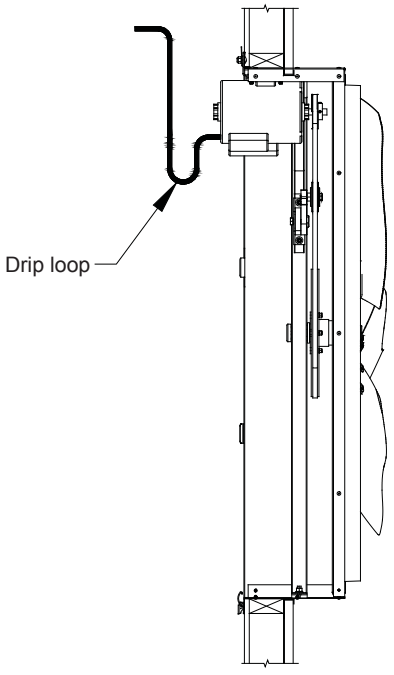


Figure 15B

OPERATION

1) **INITIAL START-UP:** With electrical power off, verify that the fan propeller turns freely and that all fasteners are secure. Turn on electrical power and confirm that the fan operates smoothly.

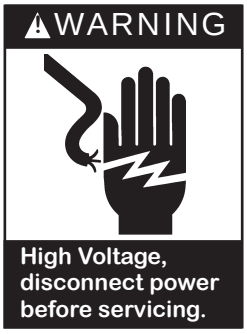
2) **ADJUSTMENTS:** Set the fan control to the temperature shown on your Aerotech ventilations system drawing, or to a value which will provide the desired environmental conditions.

Single Phase Fans: Single phase fans are designed for single speed operation only.

Three Phase Fans:

1) If a frequency drive is used, the minimum operating frequency is 30 Hz.

MAINTENANCE



The following inspection and cleaning procedures should be performed monthly:

TOOLS NEEDED FOR MAINTENANCE:
wrenches: 10mm, 13mm, 16mm, 17mm, 27mm, ½", 6mm Hex

1) INSPECT PROPELLER: Check that propeller is secure on drive hub and that there are no signs of damage. The blades are of a self-cleaning design and should not require maintenance.

2) CLEAN regularly for best results:
   - FAN MOTOR: Remove any dust accumulation from motor using a brush or cloth. (DO NOT use a pressure washer). A clean motor will run cooler and last longer. At the same time, verify that the motor is secure in its mount.
   - DAMPER: Carefully clean dust from damper door and frame so that damper door opens and closes freely. A brush or cloth should be used.
   - GUARD: Clean any dust or feathers from fan guards using a brush. Dirty guards can reduce airflow.

3) CHECK FASTENERS: For safety, all fasteners should be inspected. Tighten any loose connections.

4) INSPECT FAN CONTROL: With power disconnected, inspect all electrical connections. Wiring should be secure and in good condition. Remove any dust build-up from control case and sensor using a soft brush or cloth. **NEVER CLEAN ELECTRICAL EQUIPMENT WITH A PRESSURE WASHER!**

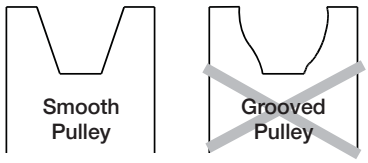
⚠WARNING

Do not power wash electrical devices.

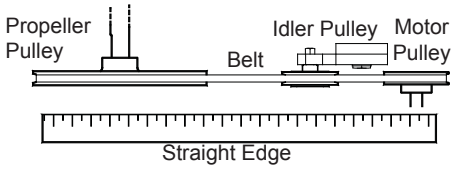
⚠WARNING

Moving parts, disconnect power before servicing.

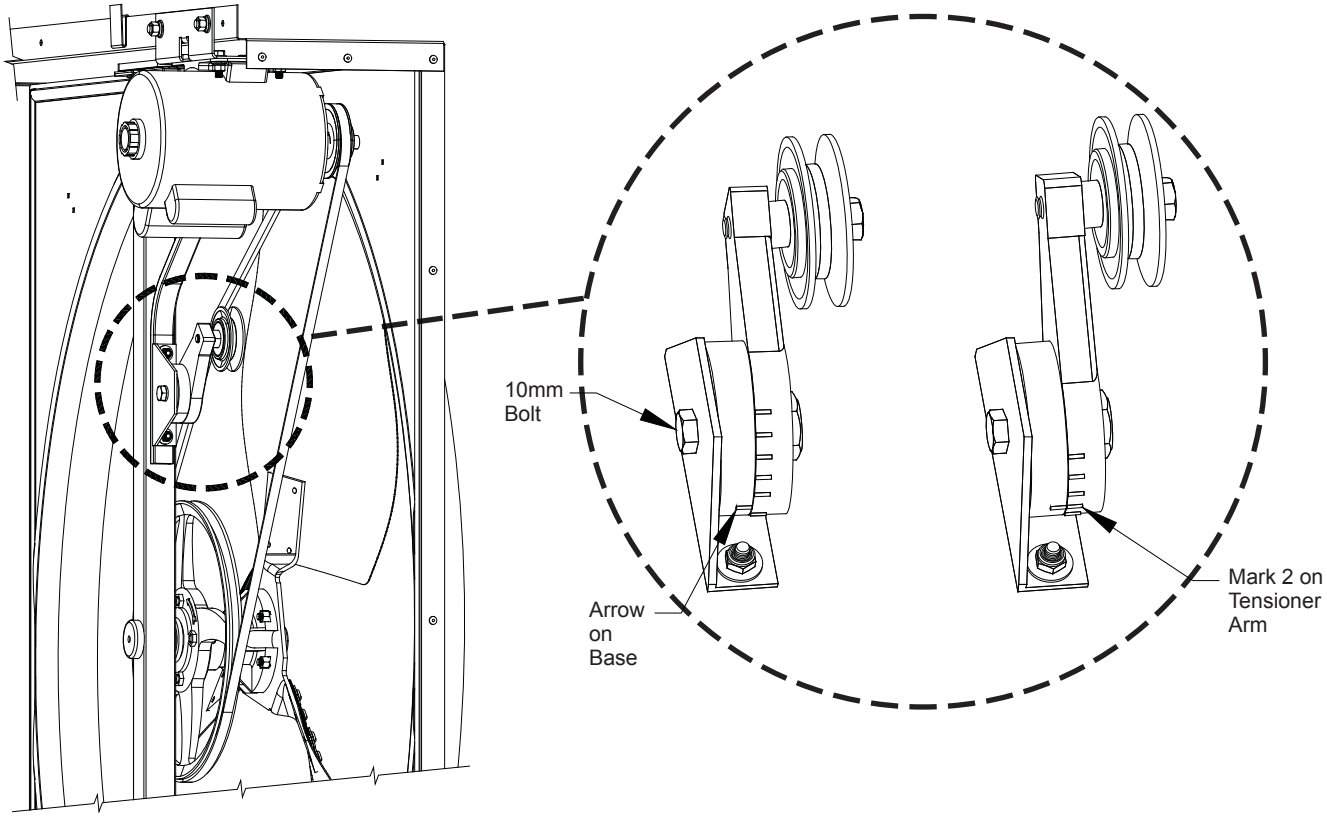
5) CHECKING PULLEYS: Roll the belt off and look at both pulleys. If the pulley has grooves in it or is no longer smooth, it needs replacement. A loose or slipping belt will reduce fan performance up to 60% and cause premature belt failure.



6) CHECK DRIVE ALIGNMENT:
Check alignment of belt on idler pulley, it should be centered on the idler pulley. The belt tensioner's idler pulley and propeller pulley are fixed in position, therefore, alignment must be obtained by adjusting the motor and propeller pulleys. If an adjustment is needed, remove the belt, then loosen the set screws in the pulley and move as necessary to achieve proper alignment. Remember to tighten the pulley set screws after making an adjustment. Drive alignment is very important for long belt life and proper operation.



7) BELT TIGHTENING:
To adjust the belt tensioner to the proper setting, loosen 10 mm bolt (using 16mm or 17mm end wrench) to allow tensioner arm to rotate. Working from inlet/motor side of fan, place a 27 mm (1 1⁄16") wrench onto the hex on the tensioner. Turn wrench clockwise until the single mark on base of the belt tensioner is aligned with mark 2 on the tensioner arm. Hold tensioner at this setting and tighten the 10mm bolt to 40 ft.-lbs torque



WINTERIZING FAN

In most climates, it is probable that the ventilation system will never need to operate at a total capacity during the colder winter months. Consequently, it is advisable to "winterize" those fans which will not be used in cold weather to avoid unnecessary heat loss and condensation.

NOTE: At least one single speed fan should be left uncovered and with power available to provide air movement in the event of variable speed control difficulties.

WINTER WEATHER PROTECTION

To prevent cone or fan damage from snow or ice sliding off building roof, weather protection must be provided. A weather shelter may be constructed to cover the entire fan, ***See Figure 16,*** or snow guards may be placed on the roof, ***See Figure 17.***

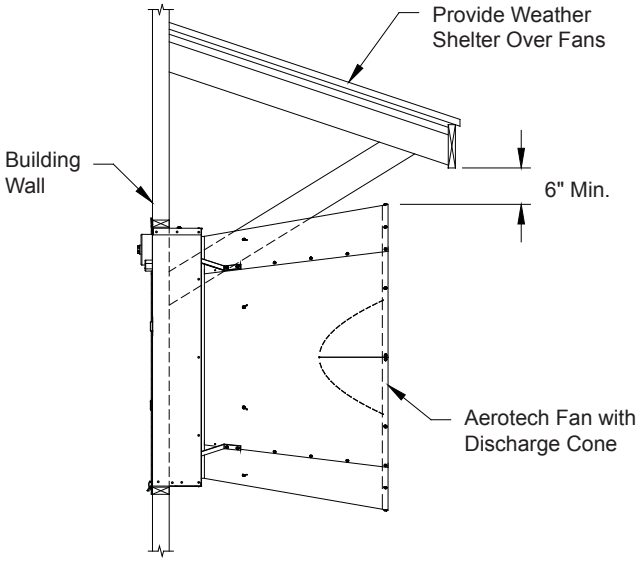


Figure 16

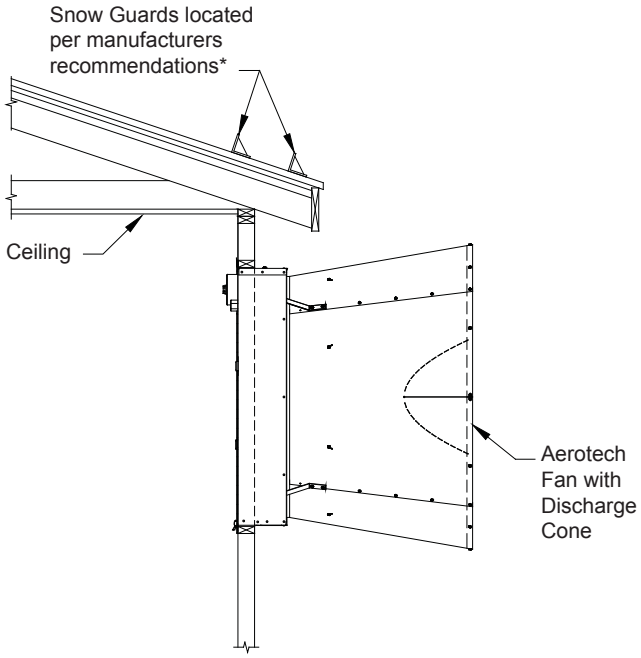


Figure 17

*Snow Guard Suppliers

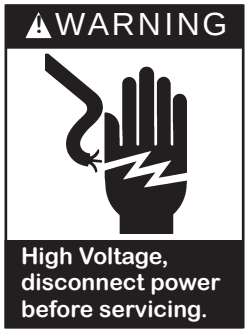
Company Name	Phone No.	Fax No.	Web Site
Snojax, Inc.	800-766-5291	(717)-697-2452	www.snojax.com
Polar Blox	800-298-4328	(814) 629-9090	www.polarblox.com
LM Curbs	800-284-1412	(903) 759-3598	www.lmcurbs.com
Alpine Snow Guards	888-766-4273	888-766-9994	www.alpinesnowguards.com

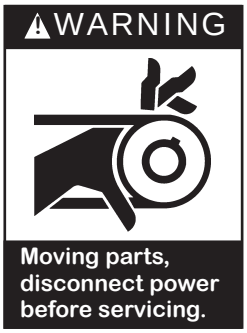
⚠ IMPORTANT

Aerotech, A Munters Company Product and System Warranties DO NOT cover cone or fan damage from external sources.

Note: Snow guards are designed to prevent sudden, dangerous snow and ice slides when attached to the building roof according to manufacturers recommendations. The supplier listing above is given as a reference only. Aerotech does not endorse any specific snow guard product and no performance warranty is implied.

TROUBLE SHOOTING

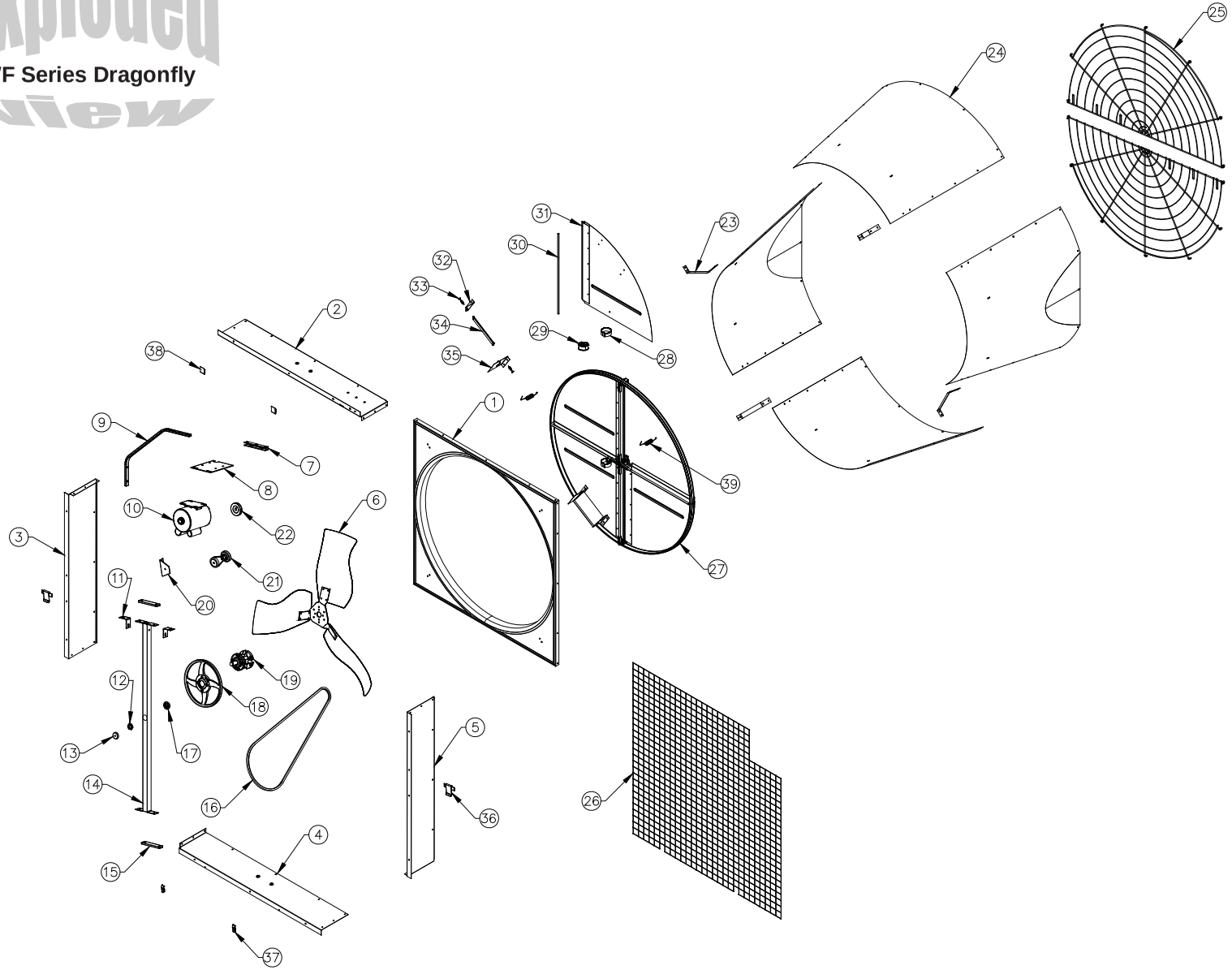




SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
Fan Not Operating	1. Fan control set above room temperature 2. Blown fuse or open circuit breaker 3. Propeller blade contacting fan housing 4. Fan control defective 5. Motor defective	1. Set to a lower temperature 2. Replace fuse or reset breaker 3. Realign propeller in fan housing 4. Repair or replace control 5. Repair or replace motor
Fan Operating-Insufficient Airflow	1. Dragonfly jammed 2. Guard dirty 3. Incorrect Belt Tension 4. Worn pulleys.	1. Clean Dragonfly & fan housing 2. Clean guard 3. See Maintenance Section. 4. See Maintenance Section.
Excessive Fan Noise	1. Propeller blade contacting fan panel 2. Motor bearing defective	1. Realign propeller in fan housing 2. Repair or replace motor
Excessive Fan Vibration	1. Motor loose in mount 2. Propeller damaged 3. Motor shaft bent	1. Tighten fasteners 2. Replace propeller 3. Repair or replace motor
Fan Never Turns Off	1. Override thermostat set incorrectly 2. Control set for continuous operation	1. Set to the correct temperature 2. Set control correctly

exploded view

WF Series Dragonfly



Munters Corporation
4215 Legion Dr. Mason, MI 48854-1036 USA
(517) 676-7070 Fax (517) 676-7078
www.munters.us

exploded view
WF Series Dragonfly

Item	Cat. No.	Part Name/Description	Qty.
1	FH1951	Orifice panel, galvanized	1
2	FH3961	Top housing panel, galvanized	1
3	FH3962	Left/Right side housing panel, galvanized	1
4	FH3960	Bottom housing panel, galvanized	1
5	FH3962	Left/Right side panel of housing, galvanized	1
6	FP2549	Prop assembly, 3-blade, galvanized	1
7	FH2429	Support Bracket for motor mounting plate, galvanized	1
8	FH2846	Mounting Plate for NEMA 56 motor	1
9	FH2428	Center support brace for Strut, galvanized	1
10	FM1024*	Motor, 1HP, 1725 RPM, 56Fr., 1ph, 120/240	1
11	FH1302	Reinforced Brackets for Strut, galvanized	2
12	KN1860	Hex nut, M25x10mm, zinc plated	1
13	KX1208	Cover plastic	1
14	FH1930	Strut, galvanized	1
15	FH1932	Spacer plate, plastic	2
16	FH1505*	V-belt, 87" A-section (A85), aramid fiber	1
17	KX1130	Bushing, aluminum	1
18	FH2137*	Propeller sheave, aluminum	1
19	FP2060	Hub with bearing and shaft	1
20	FH2504	Mounting bracket for belt tensioner	1
21	FH2402	Belt tensioner assembly with 3" idler pulley	1
	FH2406	3" idler pulley only, with bolt	1
	FH2419	Tensioner arm only, aluminum	1
22	FH2138*	Motor Sheave AK35x5/8" bore with keyseat, CI	1
23	FH2130	Cone support bracket, GC type, galvanized	4
24	FH4349	Discharge cone (Top/Bottom section), galvanized	2
	FH4450	Discharge cone (Left/Right section), galvanized	2
25	FH2654	Guard, Flat side cone, ½ circle, pvc coated	2
26	FH1750	Inlet guard, 56” S.Q., 2” x 2”, Galvanized	1
27	DG1050	Assembly, Dragonfly, 50” fan	1
28	KX1459	Spring, Constant force, 1” W, 1.15LB	2
29	AC2072	Spring reel spool, 2.75” O.D., 1.25”W.	2
30	FA2712	Tube, Hinge, 26.2”L	4
31	FA2722	50” Dragonfly door. flat	2
	FA2724	50” Dragonfly door, offset	2
32	FA1732	Short wing support bracket	2
33	KX1043	5/16” Push-in fastener, nylon	4
34	FA1733	Dragonfly door wing	2
35	FA1730	Tall wing support bracket	2
36	FH1965	Universal shutter clip, galvanized	2
37	KX1015	Draw latches	2
38	FH1278	Guard support clips	2
39	KX1470	Retainer Spring	2

* Parts listed are for standard configuration with 1HP motor and other drive components operating on 60Hz power. Contact office for other configurations.